

William Bartlett

DISKETTE MAILING LIST

A multipurpose data manager and label program

Diskette: 16K (APX-20112)

DISKETTE MAILING LIST

by

William Bartlett

Program and Manual Contents © 1982 William Bartlett

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INTRODUCTION

OVERVIEW

The DISKETTE MAILING LIST is a file management system for records stored on diskettes. It's ideal for those who have large numbers of records or in other ways have outgrown the ATARI Mailing List program (CX4104). You can easily convert your cassette or diskette records maintained by the ATARI Mailing List to the DISKETTE MAILING LIST system by means of a transfer program included in the System Menu.

Here are some features of this user-friendly system:

1. The number of records in a file is limited only by available diskette space instead of by available computer memory.
2. The program handles very large records. Your records can have as many as 127 units of information and a unit of information can contain as many as 120 characters.
3. The program can print mailing labels on multilabel forms.
4. You can store several different files on each data diskette.
5. You can use DISKETTE MAILING LIST with an ATARI 400 Computer with 16K of RAM. (See Technical Notes p.32 for potential problems).

You choose all options from three menus. On the System Menu, which is the main menu, you create and delete entire files, review names of files stored on the current data diskette, or request the two submenus, described next. On the File Maintenance Menu, you add, delete, edit, sort, and print records in a data file. On the Mailing List Menu, you define mailing label formats and print mailing labels.

A feature of DISKETTE MAILING LIST you'll especially appreciate is the ease with which you can define a format for a mailing label, including both single and multilabel forms. In addition, you can use any printer that attaches to the parallel port of an ATARI 850 Interface Module. And, you can sort on any combination of information units (for example, you can sort records alphabetically by state, then numerically by zip code, and then alphabetically by last name).

You might want to turn to the SAMPLE SESSION towards the back of these instructions and duplicate the responses on your own system. In this way you can get a quick overview of how to use the system and what features it offers.

REQUIRED ACCESSORIES

16K RAM

ATARI 810 Disk Drive (Note. Two drives eliminate the need to change diskettes)

ATARI BASIC Language Cartridge

OPTIONAL ACCESSORIES

ATARI 825 80-Column Printer or equivalent printer

CONTACTING THE AUTHOR

Users wishing to contact the author about DISKETTE MAILING LIST may call him at:

800/538-8547 (outside California)

800/672-1430 (within California)

GETTING STARTED

LOADING DISKETTE MAILING LIST INTO COMPUTER MEMORY

1. Insert the ATARI BASIC Language Cartridge in the cartridge slot of your computer.
2. Turn on your disk drive(s).
3. When the BUSY light goes out on drive 1, open the door and insert the DISKETTE MAILING LIST diskette with the label in the lower right-hand corner nearest to you.
4. Turn on your computer and your TV set. The BUSY light on drive 1 should come on, indicating the system is loading into computer memory. Memory is being saved for the Disk Operating System and for the sort routines used by DISKETTE MAILING LIST. The program then automatically loads into computer memory and the first menu displays.

GENERAL NOTES

You're now under the control of the DISKETTE MAILING LIST system. Before using the programs, read over the following general information.

1. Interpreting background color

Background color indicates the status of the system. A black background means the program is standing by. This color appears only when a menu displays. The DISKETTE MAILING LIST diskette should be in drive 1. All data files are "closed"; that is, you're not using them in any way. The system is waiting for you to choose an option from a menu. This is the only time you should shut off the system.

Green background means the program is processing something. This color appears whenever you're using an option from a menu. The diskette containing your data files should be in the drive and some data files are probably "open"; that is, you're using them in some way. Never leave the system unattended when a green background displays. Return to a menu if you're not going to use the system for awhile.

A red background means an error has occurred. For errors the system can't correct, the background changes to red and a brief message displays as to the cause of the error. An example is:

UNEXPECTED ERROR 5 AT LINE 340

You'll need to turn off your system and begin again when you see this kind of message.

2. Changing diskettes

If you use one disk drive, the system automatically prompts you whenever it's necessary to change diskettes between the DISKETTE MAILING LIST diskette and your data diskette. A sample prompt is:

PUT THE DATA DISKETTE IN DRIVE 1

PUSH START WHEN THE PROGRAM DISKETTE
IS READY IN DRIVE 1...

3. Specifying a data file

Except when first creating a new file, always begin a session with the ASSIGN DATA FILE option on the System Menu, to designate which drive will contain the data file diskette and also to indicate the data file you want to use, if you'll be using an existing file. If you don't select this option first, the system automatically selects it when you try to select one of the submenus.

4. Checking the size of your data files

For reasons explained in a later section, always use the LIST FILE SIZES option on the System Menu before starting to work with your data files and at the end of a session.

5. Duplicating your data files

Make backup copies of your data file diskettes periodically. Use the DOS option J (Duplicate Disk) and a DOS II-formatted diskette.

6. Selecting options and responding to prompts

Use only uppercase letters when you type a letter to select an option or when you respond to a system prompt. For example, type C to select the CREATE A FILE option on the System Menu. Or, type Y or N in response to the prompt OK TO PROCEED (Y/N). The one exception to using only upper case is for entering the units of information that constitute a particular record. For example, you can type "Harold Jones" as data in a record.

TERMS USED IN THESE INSTRUCTIONS

The instructions use the following terms to explain the kinds of activities possible with the DISKETTE MAILING LIST system.

FIELD

A field is one kind of information you've defined using the CREATE A FILE option. Each field has an identification "label". For example, LAST NAME, ADDRESS, and CITY are three labels for fields. The unit of information specific to the person or thing described is the field's "value". For example, "Jones" is one value for the field LAST NAME.

RECORD

A record is one complete set of fields describing a person or entity. Each person or entity has one record in a mailing list file. To perform certain activities, you specify records by their number or by their sequential position in a file after you've sorted them.

FILE

A file is the collection of all records containing the same kinds of fields. The disk directory identifies files by name, but rather than requiring you to remember these names, you can request a file by typing the number you assigned it.

DOS

The Disk Operation System (DOS) is a program residing in computer memory. It controls where each file resides on the diskette.

SECTOR

A sector is a unit of storage on a diskette. Diskettes for ATARI 810 Disk Drives have 707 sectors available for file storage.

MENU OPTIONS

INTRODUCTION

To select an option from any menu, press the letter corresponding to the menu option desired. For example, press A to select ASSIGN DATA FILE from the System Menu.

SYSTEM MENU

The System Menu contains options affecting overall system operation. The menu looks like this:

SYSTEM MENU

```
A-ASSIGN DATA FILE
C-CREATE A FILE
D-DELETE A FILE
E-EDIT A FILE
V-MOVE A FILE
L-LIST FILE SIZES
F-FILE MAINT MENU
M-MAIL LABEL MENU
```

SELECT OPTION

Descriptions of each option follow.

A-ASSIGN DATA DISK

Use this option to assign the drive on which the program should access the data file diskette and to choose the data file you want to work with. The first prompt for this option is:

```
PUSH 1 IF THE DATA DISK IS D1
PUSH 2 IF THE DATA DISK IS D2
```

Use two drives if you can, to eliminate having to change back and forth between your data file diskette(s) and the DISKETTE MAILING LIST diskette. However, if you use only one drive, the program displays a prompt whenever you must change diskettes, which occurs when you select a new option and again when you complete the option.

Next, a prompt displays for you to choose a data file:

```
CHOOSE A DATA FILE BY
ENTERING A NUMBER FROM 1-255...
```

Enter the number of the data file you want to use and press the RETURN key. (Use option L-LIST FILE SIZES to recall data file numbers and titles.) If you type a number the program can't locate on the current data file diskette, the program displays a warning message and returns you to the System Menu. For example, if you indicate you want data file 3 and the data diskette currently in your disk drive doesn't contain a data file numbered 3, the warning is:

D2:CONTROL.3 NOT ON THIS DISK!

If the data file you specify is on the diskette, the description of the file and the number of records currently in the file display to let you verify your selection. For example, the display looks like this for a file named NAME AND ADDRESS FILE containing 31 records:

```
NAME AND ADDRESS FILE
31 RECORDS
OK TO PROCEED (Y/N) ...
```

If the file is what you want, type Y and press the RETURN key. You then return to the System Menu to select your next activity. If the file isn't what you want, type N and press the RETURN key. The system then redisplay the file number selection prompt.

C-CREATE A FILE

Use this option to define a new data file on the data diskette. Defining a file consists of responding to system prompts for information about the fields for the records. You'll supply two kinds of information for each field: (1) the title (label) you want to assign to the field and (2) the maximum length the field's value can be.

Preliminary work--Determining your file's characteristics

Before you create a data file, you first need to think about what you want in your records. Decide on these aspects:

1. What do I want to call this file? You can use any description up to 30 characters long.
2. What units of information do I want in these records? Decide not only what information you want, but also how you want to break it down. For example, you'll probably want a NAME field. But do you want to divide the information into FIRST NAME and LAST NAME fields or do you want just one field holding both pieces of information? One consideration is the kind of sorting you'll want to do with your records. If you have separate LAST NAME and FIRST NAME fields, you can sort separately on last names. However, if you have a NAME field only, with the values entered in first name, last name order, you won't be able to sort on last names. After deciding on the fields you want, also decide on the order that is most logical and convenient for typing in the information. You may define as many as 127 fields. The program will ask you how many fields you want, so add up your fields.
3. What name (label) do I want to assign to each field? Field labels can be as long as 10 characters.
4. What is the maximum length a value can have for each field? Field lengths must be between 1 and 120 characters each. (Keep in mind that the printer prints lines up to 132 characters long and that the program prints each record on one line in the Print Data option on the File Maintenance Menu. However, because you define mailing label formats yourself, you can print fields as long as 120 characters with the

label program, if you want to.) It's usually a good idea to be generous in setting your field lengths and the system doesn't penalize you for doing so, because it stores only real values for each record, not the predefined field lengths.

With this information determined, you're ready to use option C to create your file definition.

Creating a file definition

The program first asks you to identify the new data file by assigning it a number between 1 and 255. The prompt is:

```
CHOOSE A DATA FILE BY  
ENTERING A NUMBER FROM 1-255...
```

The number must be unique for this data file diskette. Type your number and press the RETURN key. If the program determines that the number already belongs to another data file on the diskette, it displays the warning message,

```
FILE DEFINITION ALREADY EXISTS!
```

and redisplay the System Menu. After the program accepts your number, it asks for a brief description of the file. The prompt is:

```
DESCRIPTION OF FILE (30 CHAR)...
```

Type in a description up to 30 characters long and press the RETURN key. Then you indicate the number of fields you want to use in the file. The prompt is:

```
HOW MANY FIELDS IN A RECORD...
```

Type in the number of fields (between 1 and 127) you want to define and press the RETURN key.

Now you type field labels and lengths in response to prompts for each field, pressing the RETURN key after each entry. The prompts for each field look like this:

```
FIELD 1  
LABEL...  
LENGTH...
```

(Note. If you now want to add records to this file, you must first use option A-ASSIGN DATA FILE to indicate to the system that you now want to use your new file.)

D-DELETE A FILE

Use this option to delete all files associated with a particular data file. This option erases both all the records in a file and the file definition. If you want to erase only some records from your data file but leave the file definition (and perhaps some other records), use the DELETE DATA option on the File Maintenance Menu.

After you select the DELETE A FILE option, this prompt displays:

```
CHOOSE A DATA FILE BY  
ENTERING A NUMBER FROM 1-255...
```

Type the number of the data file you want to delete and press the RETURN key. The program then displays the file description along with the prompt:

```
OK TO PROCEED (Y/N)...
```

If you chose the wrong file, type N and press the RETURN key. You then return to the data file number prompt. (Note. If you change your mind at this point, you can return to the System Menu by typing a non-existent file number between 1 and 255. The program displays an error message and then returns you to the System Menu.)

If you chose the right file, type Y and press the RETURN key. The program then asks you to type in a "password" before it deletes files. The prompt is:

```
ENTER THE PASSWORD ERASE TO DELETE  
ALL RECORDS IN THE FILE  
ENTER THE PASSWORD OR [ESC]...
```

This extra step serves as a warning that you're requesting an option that can cause you a lot of grief if you selected it by mistake. You can't recover deleted files! The password is ERASE, and when you type it in, the letters won't display on your TV screen; however, the program starts erasing your specified files as soon as you type in the last E. As the program deletes first the file definition and then the data file, it displays messages like these for a file numbered 3, located in drive 2:

```
DELETING D2:CONTROL.3  
DELETING D2:DATA.3
```

If you change your mind about erasing all traces of the file, press the ESC key instead of typing the password and you'll return to the System Menu.

E-FILE EDIT

Use this option to make simple changes to the information in the CONTROL.N file. This option is primarily designed to allow the user to fix typing errors that were made when the field labels and lengths were defined. To use the option, type E on the Main Menu. The program will prompt you to select a file by choosing a number from 1-255. The current values of the fields will be displayed one at a time. Make any changes with the screen editor and press the RETURN key.

V-MOVE A FILE

Use this option to transfer data from a data file created by the ATARI MAILING LIST (AML) program to a DISK MAILING LIST (DML) file format. This will be very useful for people who are upgrading and don't want to reenter all of their existing data.

To use this option type V on the Main Menu. The program will prompt you to identify the file name of the AML data file. It is possible to transfer from a tape file by specifying C: as the filename. If you have only one disk drive, you will need to first transfer the AML file to the DML disk. Next, run the program to transfer the data to the DML file. Then you delete the AML file using DOS. If you have two disk drives, put the AML disk in drive one and run the program. It will automatically transfer the data to a DML file on drive two.

The program will prompt you to select a DML file by choosing a number from 1-255. It will then tell you how many fields are in the AML file and ask you to define their labels and lengths to be used in the DML system. It will then proceed to transfer the data. The data will be echoed on the screen as the transfer takes place.

L-LIST FILE SIZES

Use this option to display a summary of all the data files on the data diskette. You can request the information to display on your TV screen or to print on your printer. If you opt to display the information on the TV screen, the display remains until you press the START key, which returns you to the System Menu. If you opt to print the information, make sure your printer and interface module are turned on.

The summary contains five types of information about each file:

1. FILE ID identifies the file number (1 - 255).
2. SECTORS indicates the number of sectors DOS has allocated to the file.
3. % FULL shows the ratio between the file size and the free space remaining on the diskette. This is important information because the system requires at least as much free space as file space on a diskette to execute several options safely. In particular, you can't use the EDIT, DELETE, or SORT options on the File Maintenance Menu if this ratio exceeds 100 percent. If you try to do so, the program displays the message

NOT ENOUGH FREE SECTORS!

Refer to the Advanced Technical Information section for further details.

4. RECORDS shows the number of records in the data file.
5. DESCRIPTION is the description you assigned the data file when you created the file definition.

The last line of the report indicates the number of free sectors available to DOS and the ratio of this number to the total number of sectors on the diskette (707). Figure 1 is a sample printed list.

FILE ID	SECTORS	% FULL	RECORDS	DESCRIPTION
1	3	0.48	2	FRIENDS AND RELATIVES
4	3	0.48	0	HOT PROSPECTS
	619	87.55 % FREE SPACE ON THE DATA DISKETTE		

Figure 1 Sample LIST FILE SIZE printout

You should use this option at the start and the end of every session and take special note of the SECTORS and % FULL data for each file, and the summary information on the last line. Whenever a file's SECTORS approaches 350 and the % FULL approaches 95 percent, consider freeing up sectors on the diskette. The program flags any file exceeding 100 percent of free space remaining on a diskette, and the flag signals to the program not to allow the EDIT, DELETE, or SORT options to be selected.

If you do have a file exceeding 100 percent, you have a couple of choices for freeing more sectors on the diskette. If the diskette contains some files you no longer want, you can use option D-DELETE A FILE on the System Menu to erase the file definition and all records. Or, you can call the DOS menu and use option C (Copy File) to transfer either the large file or other, smaller files to another diskette and then use DOS option D (Delete File) to erase the files on the full diskette.

FILE MAINTENANCE MENU

INTRODUCTION

Use the File Maintenance Menu to choose options affecting information in your records. The menu looks like this:

FILE MAINT MENU

A-ADD DATA
E-EDIT DATA
D-DELETE DATA
S-SORT DATA
P-PRINT DATA
R-RETURN TO MENU

SELECT OPTION

To select an option from the menu, press the letter corresponding to the desired option; for example, press A to select ADD DATA. The program displays a message while it loads the appropriate program into computer memory. For example, this message displays if you select ADD DATA:

LOADING D1:FILEADD

When the program has loaded into memory and begins executing, the background changes to green. The current file number and a brief description of the program display for verification.

You can return to the File Maintenance Menu after selecting any of these options, in case you pressed the wrong letter. The message usually looks like this:

PUSH SELECT FOR MENU...
PUSH START TO CONTINUE...

A-ADD DATA

Use this option to add records to a data file. The program begins with the standard program verification procedure. Then, you complete three steps to add a record to a file.

1. First you acknowledge that you want to add a record to the file. To do so, press the START key in response to message:

Push SELECT to return to
the FILE MAINTENANCE MENU

Push START to add another record

If you don't want to add more records, press the SELECT key.

2. Then enter the information for each field in response to prompts displaying field labels. For example,

FIRST NAME?
LAST NAME?
BIRTHDAY?

3. Finally, the complete record displays and you verify the information you entered by pressing the appropriate key in response to the message:

PUSH SELECT IF YOU MADE A MISTAKE...
PUSH START TO ADD THE RECORD...

If you press the SELECT key, the field labels redisplay for you to type in values again. If you press the START key, the program adds the record to the data file and redispays the prompt in step 1.

E-EDIT DATA

Use this option to modify the contents of any field in any record. The program begins with the standard verification procedure. Before choosing this option, it's a good idea to use the SORT DATA option on the File Maintenance Menu. Sorting before you edit records lets you find particular records more easily. The EDIT program reads through the file sequentially, beginning with the first record sorted according to your specifications. When you choose this option, the program displays each record on the TV screen and prompts you for the appropriate action. Therefore, if your file is sorted in a particular order, you can visually page through the records until you reach the record(s) you want to edit.

The program begins by asking you to specify a value for the field on which you last sorted the file. For example, if you last sorted the file by the LAST NAME field, you can specify that the first record you want displayed should have the value "Jones" in the LAST NAME field. In this way you can bypass the visual paging of records whose values fall below the one you specify and thereby speed up locating particular records. An example of the prompt is:

THE FILE WAS LAST SORTED BY: LAST NAME

ENTER THE 1ST LAST NAME
YOU WANT TO EDIT

Enter the value you want to begin the visual paging with and press the RETURN key. If you want to begin paging with the first record in the file, press the RETURN key without specifying a value.

The program reads through the file until it finds a record whose value matches or exceeds the one you specify. It then displays this record on the TV screen and prompts you to choose the appropriate action:

PUSH OPTION TO EDIT RECORD...
PUSH SELECT TO KEEP RECORD AS IS...
PUSH START TO RETURN TO MENU...

Press the OPTION key to begin editing a record. The program then clears the screen and

displays each field, one at a time. The current value for the field displays. To keep the value, press the RETURN key. To modify the field, type in the new value and press the RETURN key. The program repeats this procedure for each field. After you've gone through all the fields in the record, the program redisplay the record and prompts you to choose the appropriate action; it displays the same prompts as shown above. Press the OPTION key again to make further changes to the record; press the SELECT key to store the record as it now appears and to continue paging through the file; or press the START key to end your editing and return to the File Maintenance Menu.

D-DELETE DATA

Use this option to delete existing records from a data file (without erasing the file definition). The program begins with the standard program verification procedure and continues by asking if you want to delete all or only some of the records in the file. The prompt is:

```
RECORD SELECTION CRITERIA  
DELETE ALL OR SOME RECORDS (A/S)...
```

To delete all records in the file, type A and press the RETURN key. The program displays a warning message and asks you to enter a "password":

```
ENTER THE PASSWORD ERASE TO DELETE  
ALL RECORDS IN THE FILE  
ENTER THE PASSWORD OR [ESC]...
```

The extra step serves as a warning that you're requesting an option that can cause you a lot of grief if you selected it by mistake. You can't recover deleted records! The password is ERASE, and when you type it in, the letters won't display on your TV screen; however, the program starts erasing your specified records as soon as you type in the last E. As it does so, messages like these display (for a data file numbered 1 located in drive 2):

```
CORRECT!  
UPDATING D2:DATA.1  
UPDATING D2:CONTROL.1
```

To delete only some records in a data file, type S in response to the first prompt and press the RETURN key. The program then asks you to identify which records you want to delete. You identify the records by defining a criterion they must meet. The criterion consists of choosing a field, a value for the field, and a logical indicator. The logical indicator can be "greater than", which you specify by typing ">"; or "less than", which you specify by typing "<"; or "equal to", which you specify by typing "=". For example, if you want to erase all records with a value greater than 89999 in the ZIP CODE field, which we'll say is field #6, you would respond to the prompts as follows, pressing the RETURN key after each response:

```
RECORD SELECTION BASED ON FIELD... 6  
COMPARISON METHOD <,,>...>
```

COMPARISON VALUE...89999

When the first prompt displays for selecting a field, the program also displays all the field labels and corresponding numbers, so that you can select the appropriate field number. After you enter all the information, the program reads records from the file and tests whether they qualify. For those that do, the program then prompts you to authorize removal:

PRESS D TO DELETE THIS RECORD...
PRESS K TO KEEP THIS RECORD...

To keep the record, press the letter K. To delete the record, press the letter D. After the program displays the last record meeting the criterion, you return automatically to the File Maintenance Menu.

SORT DATA

Use this option to sort all the records in the current file, based on any combination of fields defined for the file. The fields you choose to sort on are called "key fields".

The program begins with the standard program verification procedure. Then the program displays a message telling you the maximum key length allowed. An example is:

DEFINE KEY FIELDS FOR SORTING
MAXIMUM KEY LENGTH = 185

The combined length of the key fields cannot exceed 185 characters, and in many cases will be limited even further by insufficient memory (less than 48K of RAM), or by large numbers of records. The program calculates the maximum length allowed and displays the information in the prompt shown above.

The program continues by asking you to specify the number of fields on which you want to sort. The prompt is:

HOW MANY ARE KEY FIELDS...

All the field numbers, labels, and maximum lengths display above the prompt. Type in the number of fields you want to use and press the RETURN key. For example, if you want to use LAST NAME and FIRST NAME fields, type 2 <RETURN>. Then you identify each key field in response to prompts:

KEY 1 FIELD #...
KEY 2 FIELD #...

Enter the field numbers in the order by which you want the records sorted and press the RETURN key after each number. The program sorts each field in order of the ATASCII Character Set (the general order is first by number, then by uppercase letter, and then by lowercase letter). Appendix C of the BASIC Reference Manual lists these characters in order.

After you enter the last key field number, the program sorts the file in a three-step

process. It keeps you informed of its progress by displaying messages on the screen. For example,

```
2 MINUTES ESTIMATED DURATION
SORT PASS 1
1 OF 56
SORT PASS 2
SORT PASS 3
1 OF 56
```

During sort pass 1, the program reads through the records and accumulates their key fields. During sort pass 2, the program sorts the key fields in computer memory, using a very fast machine-language sorting routine. During sort pass 3, the program transfers the records in the sorted sequence to a temporary file. It then deletes the permanent file and renames the temporary one to be the new permanent file. The final messages are like these:

```
UPDATING D2:DATA.1
UPDATING D2:CONTROL.1
```

P-PRINT DATA

Use this option to print a report of records from the current file. Each record prints on one line. You define the records to be included by defining a record selection qualification. You also define the contents of the report by choosing which fields to print.

The program begins with the standard program verification procedure. You then specify whether you want the report displayed on the screen or sent to the printer. The prompt is:

```
PUSH S FOR OUTPUT TO SCREEN
PUSH P FOR OUTPUT TO PRINTER
```

If you opt to display the records on your TV screen, the information remains on the screen until you press the START key to return to the File Maintenance Menu. If you opt for printing the report, make sure your printer and interface module are turned on. If you select the printer, the program prompts you to enter a date. Use the form DD/MM/YY.

Next you decide whether you want to print all or only some of the records. The prompt is:

```
RECORD SELECTION CRITERIA
PRINT ALL OR SOME RECORDS (A/S)...
```

To print all the records in the file, type A and press the RETURN key. To print only some records, type S and press the RETURN key. In the latter case, the program then asks you to identify which records you want to use. You identify the records by defining a criterion they must meet. The criterion consists of choosing a field, a value for the field, and a logical indicator. The logical indicator can be "greater than", which you specify by typing ">"; or "less than", which you specify by typing "<"; or "equal to", which you specify by typing "=". For example, if you want to print all records with a value greater than 89999 in the ZIP CODE field, which is field #6, you would respond to

the prompts as follows, pressing the RETURN key after each response:

RECORD SELECTION BASED ON FIELD... 6

COMPARISON METHOD <,<=<,>...>

COMPARISON VALUE...89999

When the first prompt displays for selecting a field, the program also displays all the field labels and corresponding numbers, so that you can select the appropriate field number. The program will print or display only those that qualify.

Finally, the program asks you to define the content and format of the report. You define the content by selecting the fields you want printed, and you define the format according to the order by which you select the fields. The program prints or displays the fields from left to right across the page. You cannot exceed the maximum line width of 132 columns, and you cannot specify more print fields than the number of fields defined for the file. The prompt for specifying which fields to use is:

PRINT FORMAT DEFINITION

(0=CONTINUED) FIELD #...

Type in each field number in the order you want to use it and press the RETURN key. The prompt redisplay until you type a 0 to signal the program to continue processing. The program then prints or displays your report. Figure 2 is a sample printed report.

```
3/6/82      HOT PROSPECTS SORTED BY LAST NAME
              ALL RECORDS

LAST NAME    FIRST NAME    ADDRESS                CITY                ST  ZIP CODE
CHURCHILL    KATHY          1259 LA POSADA LANE    SAN DIEGO           CA  92120
DOE          JOHN          123 MAIN ST.          SUNNYVALE           CA  94086
SMITH        AL            456 SOUTH ST.         SANTA CLARA          CA  94432

3           ON FILE
3           PRINTED
100 %
```

Figure 2 Sample Report Using PRINT DATA Option

The headings on the report include (1) the date, if you chose to print the report; (2) the description of the data file; (3) the field the file was last sorted on; and (4) a description of the record selection qualification. The end of the the report summarizes

the number of records in the file, the number printed or displayed, and their percentage of the entire file.

MAILING LABEL MENU

INTRODUCTION

Use the Mailing Label Menu to choose options affecting the mailing label features of the system. The menu looks like this:

MAILING LABEL MENU

F-FORMAT A LABEL
P-PRINT LABELS
R-RETURN TO MENU

SELECT OPTION

With the FORMAT A LABEL option, you create the layout for your labels. Once you create a label format, it remains in effect for the file whenever you use the PRINT LABELS option, until you create a new format for that file.

To select an option, press the letter corresponding to the desired option. A message displays as the system loads the appropriate program into computer memory. For example, this message displays if you press P:

LOADING D1:MAILLBL1

The sample session runs through creating a simple label format. You might want to duplicate the responses yourself before creating your own.

F-FORMAT A LABEL

Use this option to define a format for printing labels with the label print program (option P). Your format may include one or more lines per record and you may print more than one label across the page. This feature lets you define a format for almost any industry-standard, gummed mailing labels. The most common ones are "2-up" and "3-up" labels. You need define your label format only once for a data file, but you can redefine the format whenever you wish. When you select this option, be sure your printer and interface module are turned on and that the printer is in ONLINE mode.

The program begins with the standard program verification. It then prints a template to help you answer the prompted questions about the physical dimensions of your format. Figure 3 shows the template.

HOW MANY PHYSICAL
LINES ON 1 LABEL...

This number refers to all lines making up a label, whether or not they contain text. You are specifying the height of each label. You may use between 1 and 25 lines. Type in your number and press the RETURN key.

Then you identify the left-hand margin before printing the first label across the page. The prompt is:

HOW MANY COLUMNS SHOULD BE SKIPPED
FOR A LEFT MARGIN...

Type in your number and press the RETURN key.

Next the program asks you for the number of columns constituting a label. The prompt is:

HOW MANY PHYSICAL
COLUMNS ON 1 LABEL...

This number refers to the total number of columns on one line of a label, whether or not they contain text. You are specifying the width of each label. The number of columns you can specify for a label depends on the number of labels you want across the page. The program allows up to 132 columns. For example, if you specify two labels across the page, each label can't exceed 66 columns, and if you specify three labels across, each label can't exceed 44 columns.

Creating each line

The program now displays instructions explaining how to define each line in the format:

LABEL PRINT FORMAT DEFINITION
*****INSTRUCTIONS*****

SELECT E TO SPECIFY THAT DATA FROM
A FIELD SHOULD BE PRINTED ON THE LINE.
YOU'LL BE ASKED TO SUPPLY THE
FIELD NUMBER.

SELECT I TO SPECIFY THAT TEXT SHOULD
BE PRINTED ON THE LINE. YOU'LL BE
ASKED TO SUPPLY THE TEXT.

SELECT L TO INDICATE NO MORE PRINTING
ON THE CURRENT LINE AND TO BEGIN THE
NEXT LINE.

You essentially create a picture on the TV screen, line by line, of what a label will look like. To build each line, you specify either data from the records, or text you supply, or a blank line (by selecting L to go on to the next line). After typing F, T, or L, press the RETURN key. When you've finished defining the format for the current line,

select L to begin building the next line. The prompt for each line is:

LABEL FORMAT DEFINITION FOR LINE 1

E-FIELD, I-TEXT, L-NEXT LINE

To print data from the file, type F <RETURN>. The program then asks you to type in the number of the field to be printed. The prompt is:

WHAT FIELD SHOULD BE PRINTED...

The field description then displays along with a verification prompt. For example,

FIRST NAME
CHOICE OF FIELD OK...

To cancel your selection, type N for "no" and press the RETURN key. To use the field, type Y for "yes" and press the RETURN key. The program then displays the field label where the value will appear on the label to show you how the format looks so far.

To print text on a line, type T <RETURN> in response to the F/T/L prompt. You create blank spaces between fields by means of this choice. When you select T, the program asks for the text to be printed. The prompt is:

WHAT TEXT SHOULD BE PRINTED...

As you type in the text (or spaces), it displays in inverse video. Do not press the ATARI symbol key to cancel inverse video. The program takes care of it for you. The text then displays in normal video mode to show you how the format looks thus far.

When you've finished creating the format for all the lines, the program stores your layout on the diskette so you can use it to print labels during the same session and in future sessions. As it stores the information, it displays a message like this:

UPDATNG D2:CONTROL.1

F-PRINT LABELS

Use this option to print selected records in the file using the format defined in the label format program (option F). This option is particularly useful for printing on industry-standard gummed mailing labels. The program begins with the standard program verification procedure. You then decide whether to print all or only some of the records in the file. The prompt is:

RECORD SELECTION CRITERIA
PRINT ALL OR SOME RECORDS (A/S)...

To print all the records, type A and press the RETURN key.

To print some of the records, type S and press the RETURN key. The program asks you to identify which records you want printed. You identify the records by defining a criterion

they must meet. The criterion consists of choosing a field, a value for the field, and a logical indicator. The logical indicator can be "greater than", which you specify by typing ">"; or "less than", which you specify by typing "<"; or "equal to", which you specify by typing "=". For example, if you want to print all records with a value greater than 89999 in the ZIP CODE field, which we'll say is field #6, you would respond to the prompts as follows, pressing the RETURN key after each response:

```
RECORD SELECTION BASED ON FIELD... 6
```

```
COMPARISON METHOD <, >, =... >
```

```
COMPARISON VALUE... 89999
```

When the first prompt displays for selecting a field, the program also displays all the field labels and corresponding numbers, so that you can select the appropriate field number. The program prints one label for each record meeting the qualification.

Aligning the paper in the printer

The program then prints an alignment pattern, along with this prompt:

```
PUSH SELECT TO PRINT ALIGNMENT AGAIN...  
PUSH START TO CONTINUE...
```

Figure 4 illustrates the alignment pattern.

```
  X X X  
    X  
  X X
```

Figure 4 Alignment Pattern

Decide whether the labels will print as you want them to with the current alignment. If they will, then press the START key and the labels will begin printing. If they won't, then reposition the paper and press the SELECT key to print the alignment pattern again. You can repeat this sequence until the labels align with your label format and then press the START key. Figure 5 illustrates the labels created with the dimensions used in the Sample Session.

KATHY CHURCHILL
1259 LA POSADA LANE
SAN DIEGO CA 92120

JOHN DOE
123 MAAN ST.
SUNNYVALE CA 94086

AL SMITH
456 SOUTH ST.
SANTA CLARA CA 94432

Figure 5 Sample Labels

ERROR MESSAGES

FILE DEFINITION ALREADY EXISTS

You've specified a file number (between 1 and 255) to create a new file definition, but that file number already exists on the current data diskette. Use the LIST FILES option to print a report of the files on the data diskette.

DATA FILE ALREADY EXISTS

You're trying to create a duplicate data file. This message indicates that a data file exists on the current data diskette without a corresponding control file (the file definition) on the diskette. Because the system gives you no way to access a data file without its control file, you should use DOS to remove the data file. Theoretically, this message should never display.

1-127 FIELDS ONLY

You tried to define a record with less than 1 or more than 127 fields. You must stay within this range.

1-120 CHARACTERS ONLY

You tried to define a maximum field length with less than 1 or more than 120 characters. You must stay within this range.

FILE DEFINITION NOT ON THIS DISK

You've requested access to a file that hasn't been defined. Try other data diskettes, if you have more than one, or use the LIST FILES option to obtain a report of the files on the current data diskette.

CAN'T FIND PRINTER

You've requested a print program, but (1) the printer isn't turned, or (2) the printer isn't in ONLINE mode, or (3) the interface module isn't turned on, or (4) the printer or interface module isn't connected to the computer. Correct the problem and select the option again.

NOT ENOUGH FREE SECTORS

You've requested file maintenance on a file that has exceeded 100 percent of the available free space on the data diskette. You must have at least as many free sectors on the data diskette as the data file already occupies in order to perform most of the options on the FILE MAINT MENU. Select the LIST FILES option to print a report of the file sizes and free sectors. Using this option also causes the program to set the "file full" flag for each data file exceeding 100 percent of free space. If the number of sectors in the data file exceeds the number of free sectors on the diskette (the % FULL is greater than 100), the flag is set. To free up sectors, you can use the DOS Copy File option to transfer the data and control files of other data files to another data diskette and then delete them on the current diskette. Then use the LIST FILES option again to reset the "file full" flag for the file you want to access.

UNABLE TO OPEN TEMP FILE

The system can't create a temporary work file. Either all 707 sectors have been allocated to other files, or 64 DOS files already exist on the diskette. In either case, the disk is full. See the explanation under NOT ENOUGH FREE SECTORS, above, for a way to solve the problem.

THE SORT ROUTINE IS NOT IN MEMORY

You've requested the SORT DATA option, but the machine-language sort routine isn't in memory. To load in the sorting routine, shut off your system and begin again.

YOU DON'T HAVE ENOUGH MEMORY TO SORT THAT MANY RECORDS

You've requested the SORT DATA option, but not enough free memory is available to handle the number of records in the file. You must obtain more memory. The following table shows how many records can be sorted with different key lengths and free memory space.

NUMBER OF RECORDS THAT CAN BE SORTED

RAM	Sort Key Length (# characters)				
	5	10	20	30	40
---	-----	-----	-----	-----	-----
16K	176	107	60	41	31
32K	2223	1367	772	537	412
48K	3247	1997	1128	785	602

CANNOT EXCEED 185 CHARACTERS BECAUSE OF LIMITED AVAILABLE MEMORY

You've requested the SORT DATA option and are trying to specify a combination of key fields that exceeds the maximum allowed, 185 characters. In addition, the maximum key length will frequently be somewhat less than 185 if the data file contains a large number of records. You can't specify a combination of key fields whose combined length exceeds the maximum key length shown in the MAXIMUM KEY LENGTH prompt that displays when you select the SORT DATA option. The following table shows the maximum key length allowed for different file sizes.

MAXIMUM KEY LENGTH ALLOWED

RAM	Number of Records				
	100	300	500	700	900
---	---	---	---	---	---
16K	11	1	0	0	0
32K	171	55	32	22	16
48K	185	83	48	34	25

SAMPLE SESSION

In this sample session, we want to set up a data file for storing the names and addresses of friends and relatives. We'll define the following fields for the records:

Field label	Maximum length
LAST NAME	20
FIRST NAME	20
ADDRESS	30
CITY	20
STATE	2
ZIP CODE	10

We'll assume there are no other data files on the data diskette, so we'll assign number 1 to this file.

After we define the file and add two records to it, we'll want to print "1-up" mailing labels (that is, one label across the page) in the following format:

```
FIRSTNAME LASTNAME
ADDRESS
CITY, ST ZIPCODE
```

All the system messages and prompts are shown below in uppercase; all the information you will type in are shown underlined. If the system expects you to press the START or SELECT key, your response is shown underlined and in square brackets (e.g., [START]).

1. Load the DISKETTE MAILING LIST program into computer memory according to the instructions in the GETTING STARTED section. The SYSTEM MENU will display on the TV screen.

2. Press the letter C to choose the CREATE A FILE option.

```
CHOOSE A DATA FILE BY
ENTERING A NUMBER FROM 1-255...?1

DESCRIPTION OF FILE(30 CHAR)...?FRIENDS AND RELATIVES

HOW MANY FIELDS IN A RECORD...?6

FIELD 1
LABEL...?LAST NAME
LENGTH...?20

FIELD 2
LABEL...?FIRST NAME
LENGTH...?20

FIELD 3
LABEL...?ADDRESS
LENGTH...?30
```

FIELD 4
LABEL...?CITY
LENGTH...?20

FIELD 5
LABEL...?STATE
LENGTH...?2

FIELD 6
LABEL...?ZIP CODE
LENGTH...?10

3. The system returns you to the SYSTEM MENU. Press the letter A to choose the ASSIGN DATA DISK option. We'll assume we're using two disk drives.

PUSH 1 IF THE DATA DISK IS D1
PUSH 2 IF THE DATA DISK IS D2

CHOOSE A DATA FILE BY
ENTERNG A NUMBER FROM 1-255...?1

FRIENDS AND RELATIVES
0 RECORDS
OK TO PROCEED (Y/N)...?Y

The system returns you to the SYSTEM MENU. Now press the letter F to choose the FILE MAINT MENU option. The FILE MAINTENANCE MENU now displays on your TV screen.

4. Press the letter A to select the ADD DATA option.

PUSH SELECT FOR MENU...
PUSH START TO CONTINUE... [START]

Push SELECT to return to
the FILE MAINTENANCE MENU

Push START to add another record [START]

LAST NAME ? DOE
FIRST NAME ? JOHN
ADDRESS ? 123 MAAN ST.
CITY ? SUNNYVALE
STATE ? CA
ZIP CODE ? 94086

PUSH SELECT IF YOU MADE A MISTAKE...
PUSH START TO ADD THE RECORD...
[START]

Push SELECT to return to the FILE MAINTENANCE MENU

Push START to add another record [START]

LAST NAME ? SMITH
FIRST NAME ? AL
ADDRESS ? 456 SOUTH ST.
CITY ? SANTA CLARA
STATE ? CA
ZIP CODE ? 94432

PUSH SELECT IF YOU MADE A MISTAKE...
PUSH START TO ADD THE RECORD...
[START]

Push SELECT to return to
the FILE MAINTENANCE MENU

Push START to add another record [SELECT]

UPDATING D2:DATA.1
END OF PROGRAM...

5. On the FILE MAINTENANCE MENU, press the letter S to choose the SORT DATA option.

PUSH SELECT FOR MENU...
PUSH START TO CONTINUE... [START]

DEFINE KEY FIELDS FOR SORTING
MAXIMUM KEY LENGTH = 185

FLD	LABEL	FIELD SIZE
1	LAST NAME	20
2	FIRST NAME	20
3	ADDRESS	30
4	CITY	20
5	STATE	2
6	ZIP CODE	10

HOW MANY FIELDS...? 2

KEY 1 FIELD #...? 1
KEY 2 FIELD #...? 2

0 MINUTES ESTIMATED DURATION
SORT PASS 1
SORT PASS 2
SORT PASS 3
UPDATING D2:DATA.1
UPDATING D2:CONTROL.1

6. Press the letter P on the FILE MAINTENANCE MENU to choose the PRINT DATA option.

PUSH SELECT FOR MENU...
PUSH START TO CONTINUE...
[START]

PUSH S FOR OUTPUT TO SCREEN
PUSH P FOR OUTPUT TO PRINTER P
TODAY'S DATA IS...?3/8/82

RECORD SELECTION CRITERIA
PRINT ALL OR SOME RECORES(A/S)...?S

FLD	LABEL
1	LAST NAME
2	FIRST NAME
3	ADDRESS
4	CITY
5	STATE
6	ZIP CODE

RECORD SELECTION BASED ON FIELD...?5
COMPARISON METHOD <,<=,>...?=
COMPARISON VALUE...?CA

PRINT FORMAT DEFINITION

FLD	LABEL	LENGTH
1	LAST NAME	20
2	FIRST NAME	20
3	ADDRESS	30
4	CITY	20
5	STATE	2
6	ZIP CODE	10

(0=CONTINUE) FIELD #...?1
(0=CONTINUE) FIELD #...?2
(0=CONTINUE) FIELD #...?3
(0=CONTINUE) FIELD #...?4
(0=CONTINUE) FIELD #...?5
(0=CONTINUE) FIELD #...?6

PRINTING
END OF PROGRAM...

7. Press the letter R to return from the FILE MAINTENANCE MENU to the SYSTEM MENU.

8. Press the letter M to choose the MAILING LABEL MENU option. The MAILING LABEL MENU displays on your TV screen.

9. Press the letter F to choose the FORMAT A LABEL option.

PUSH SELECT FOR MENU...

PUSH START TO CONTINUE...
[START]

THE TEMPLATE NOW PRINTING WILL ASSIST
YOU IN ANSWERING THE QUESTIONS ABOUT
THE PHYSICAL DIMENSIONS OF THE LABELS.

DEFINE THE PHYSICAL DIMENSIONS OF THE
MAILING LABELS

HOW MANY LABELS
ACROSS THE PAGE...?1

HOW MANY PHYSICAL
LINES ON 1 LABEL...?6

HOW MANY COLUMNS SHOULD BE SKIPPED
FOR A LEFT MARGIN...?5

HOW MANY PHYSICAL
COLUMNS ON 1 LABEL...?66

*****INSTRUCTIONS*****

⋮
⋮
⋮
[START]

F-FIELD, T-TEXT, L-NEXT LINE...?E
WHAT FIELD SHOULD BE PRINTED...?2
FIRST NAME
CHOICE OF FIELD OK...?Y
F-FIELD, T-TEXT, L-NEXT LINE...?I
WHAT TEXT SHOULD BE PRINTED...?1
F-FIELD, T-TEXT, L-NEXT LINE...?E
WHAT FIELD SHOULD BE PRINTED...?1
LAST NAME
CHOICE OF FIELD OK...?Y

F-FIELD, T-TEXT, L-NEXT LINE...?L
F-FIELD, T-TEXT, L-NEXT LINE...?E
WHAT FIELD SHOULD BE PRINTED...?3
ADDRESS
CHOICE OF FIELD OK...?Y
F-FIELD, T-TEXT, L-NEXT LINE...?L
F-FIELD, T-TEXT, L-NEXT LINE...?E
WHAT FIELD SHOULD BE PRINTED...?4
CITY
CHOICE OF FIELD OK...?Y
F-FIELD, T-TEXT, L-NEXT LINE...?I
WHAT TEXT SHOULD BE PRINTED...?1
F-FIELD, T-TEXT, L-NEXT LINE...?E
WHAT FIELD SHOULD BE PRINTED...?5

STATE
CHOICE OF FIELD OK...?Y
F-FIELD, T-TEXT, L-NEXT LINE...?I
WHAT TEXT SHOULD BE PRINTED...?_
F-FIELD, T-TEXT, L-NEXT LINE...?E
WHAT FIELD SHOULD BE PRINTED...?6
ZIP CODE
CHOICE OF FIELD OK...?Y
F-FIELD, T-TEXT, L-NEXT LINE...?L

LABEL FORMAT DEFINITION FOR LINE 4

FIRST NAME LAST NAME
ADDRESS
CITY, ST ZIPCODE

F-FIELD, T-TEXT, L-NEXT LINE...?L (repest 3 times)

UPDATING D2:CONTROL.1

10. Press the letter P to choose the PRINT LABELS option from the MAILING LABEL menu.

PUSH SELECT FOR MENU...
PUSH START TO CONTINUE...
[START]

RECORD SELECTION CRITERIA
PRINT ALL FOR SOME RECORDS (A/S)...?A

PRINTING ALIGNMENT...

<Printing Alignment Pattern Generated>

PUSH SELECT TO PRINT ALIGNMENT PATTERN AGAIN...
PUSH START TO CONTINUE...
[START]

<Two Printed Labels>

TECHNICAL NOTES

ERROR MESSAGES

There is error trapping throughout the system for the more common errors such as non-numeric input. Any other errors that occur will generate the standard system error message: UNEXPECTED ERROR 9 AT LINE 10. The background color is changed to red and an END is executed to insure that any open data files are closed properly. Whenever these error messages occur, ALWAYS reboot the system.

DESIGN PHILOSOPHY

I wanted a solid, few frills, easy to modify piece of software. For this reason I developed a system with many small, independent, single-purpose programs. With a single purpose program you don't need to make as many concessions of features for size considerations. The tradeoff concession I made was that alot of disk swapping is necessary between program and data diskettes. I attempted to minimize this tradeoff by implementing a flag at memory location 1021 (cassette buffer) that tells the system how many disk drives are attached. The idea is that every program will check the flag and prompt the user to swap the diskettes if there is only 1 drive in the system. This flag is set by the user in the program FILEASGN and is checked by the menu for a valid value (1 or 2). If the menu doesn't find a valid value, it automatically runs FILEASGN.

A major design decision was to use 2-file updating procedures whenever maintenance was to be done on a file. The idea is that you start by creating a temporary file with an open in mode 8. You then open the permanent file in mode 4 for reading. The data is read from the permanent file, modified by the user, and written to the temporary file. At the end of the permanent file, both are closed, the permanent file is deleted and the temporary file is renamed to the permanent filename. I had observed that most disk file problems occur when a file opened in append mode (8 or 9) is not closed properly. For instance when an error occurs or power is lost. By not opening a permanent file in append mode, you add a degree of data security. I did make a concession in the ADD option. Rather than wait for all existing records to be transferred to a temporary file, I simply opened the permanent file in mode 9. However, the EDIT, DELETE, and SORT options all use the 2-file method.

To get maximum utilization of the disk file space, I decided to store each field without blank filling. Only the characters keyed by the user will be written to the disk. The tradeoff is that it becomes difficult to edit a record in place on the disk. However, since I am using a 2-file edit procedure anyway this tradeoff is insignificant.

To speed up the data transfer between the disk file and the program variables, I decided to use PRINT and INPUT rather than PUT and GET. Each field is read from the file with the variable IO\$ and then concatenated into the variable REC\$. The variable FLD(#FLDS,2) is an array that describes the starting and ending bytes of the fields in REC\$. There is 1 row for each field. Column 0 is the maximum length of the field. Column 1 is the beginning byte in REC\$ of the field. Column 2 is the ending byte in REC\$ of the field.

CONTROL FILE LAYOUT

Every data file has a corresponding CONTROL.N file. It is a data file that stores descriptive material about the data file. The following chart shows the use of each of the bytes in the control file.

BYTES DESCRIPTION

2 # records in the data file in hi,lo format
1 the field # that the data file is sorted with
30 max description of the file
1 file full flag set in FILELIST
 0=file size does not exceed free sectors
 1=file size does exceed free sectors
1 # fields in each record

(repeated for each field)

1 maximum characters in field
10 field label

(mailing label definitions)

1 # labels across a page
1 # lines per label - height
1 # columns per label - width
1 # columns to skip for a left margin
n the characters that define the format of the label
 for a line (repeated for each line per label)

16K MEMORY

If you only have 16K of memory you will still be able to use all functions in the system. However, 2 of the functions might give you some unexpected errors. First, the PRINT DATA function will not have enough memory to dimension variables if there are more than 18 fields in the file. There is no way around this. Second, the PRINT LABELS function may not have enough memory to dimension variables for multi-label or multi-line formats with lots of imbedded text. If you format the label for 1-up labels or get rid of some of the imbedded text you will probably be able to run the program without error.

SPECIAL MEMORY LOCATIONS

1021 current drive for data
1022 current data file assigned
1030-1072 password routine returns 1 if successful; otherwise 0
1080-1108 string variable truncate routine used in MAILLBO

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We're interested in your experiences with APX programs and documentation, both favorable and unfavorable. Many of our authors are eager to improve their programs if they know what you want. And, of course, we want to know about any bugs that slipped by us, so that the author can fix them. We also want to know whether our

instructions are meeting your needs. You are our best source for suggesting improvements! Please help us by taking a moment to fill in this review sheet. Fold the sheet in thirds and seal it so that the address on the bottom of the back becomes the envelope front. Thank you for helping us!

1. Name and APX number of program.

2. If you have problems using the program, please describe them here.

3. What do you especially like about this program?

4. What do you think the program's weaknesses are?

5. How can the catalog description be more accurate or comprehensive?

6. On a scale of 1 to 10, 1 being "poor" and 10 being "excellent", please rate the following aspects of this program:

- _____ Easy to use
- _____ User-oriented (e.g., menus, prompts, clear language)
- _____ Enjoyable
- _____ Self-instructive
- _____ Useful (non-game programs)
- _____ Imaginative graphics and sound

7. Describe any technical errors you found in the user instructions (please give page numbers).

8. What did you especially like about the user instructions?

9. What revisions or additions would improve these instructions?

10. On a scale of 1 to 10, 1 representing "poor" and 10 representing "excellent", how would you rate the user instructions and why?

11. Other comments about the program or user instructions:

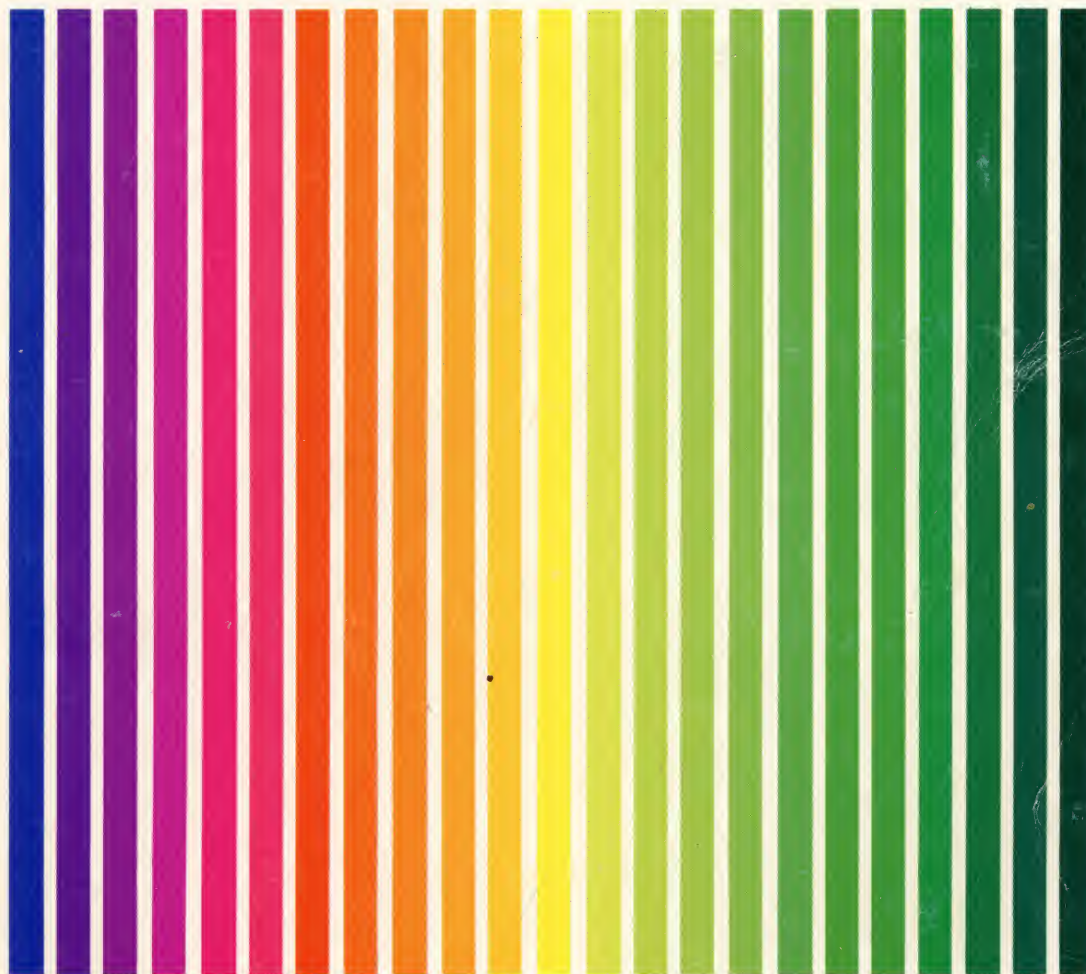
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